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**BOILER SETTING
FIRE BRICK**

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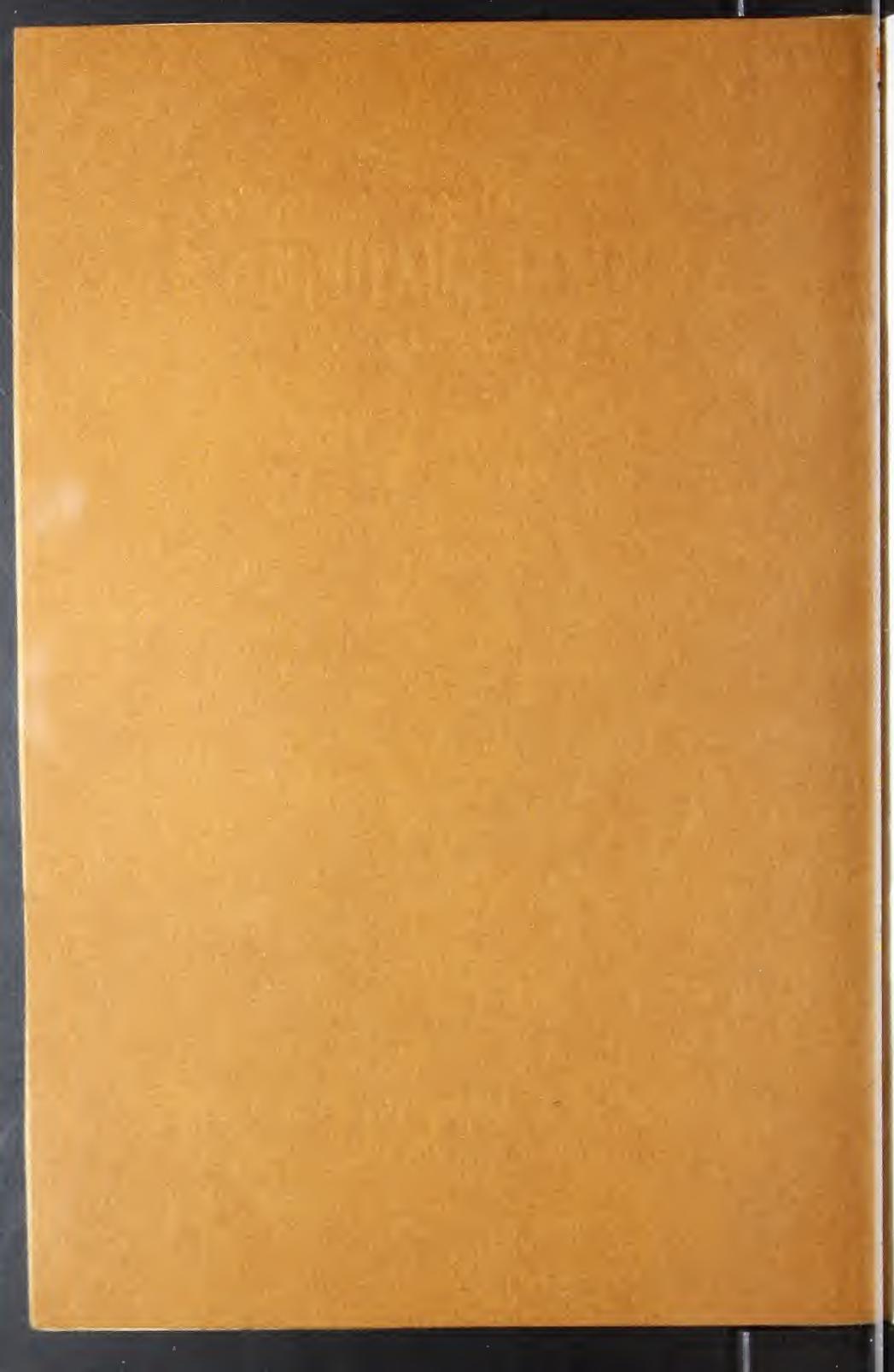
Manufactured by

MCLEOD & HENRY COMPANY
TROY, NEW YORK

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DESCRIPTIVE CATALOGUE
of
“*Steel Mixture*”

*Boiler Door Arches
Fire Box Blocks
and
Back Combustion Chamber Arches
also
Fire Brick of all Kinds*

Manufactured by
MCLEOD & HENRY COMPANY
TROY, NEW YORK

New York Office, 1402 Broadway
Boston Office, 141 Milk Street



"STEEL MIXTURE"

Introduction



HE object of this book is to enable the users of fire brick to become better acquainted with our material, our stock and our methods. It describes our Boiler Setting Arches and Blocks which are now being used so extensively in place of ordinary fire brick. Though these latter can be furnished in all the usual forms shown herein, we propose to deal more particularly with the former.

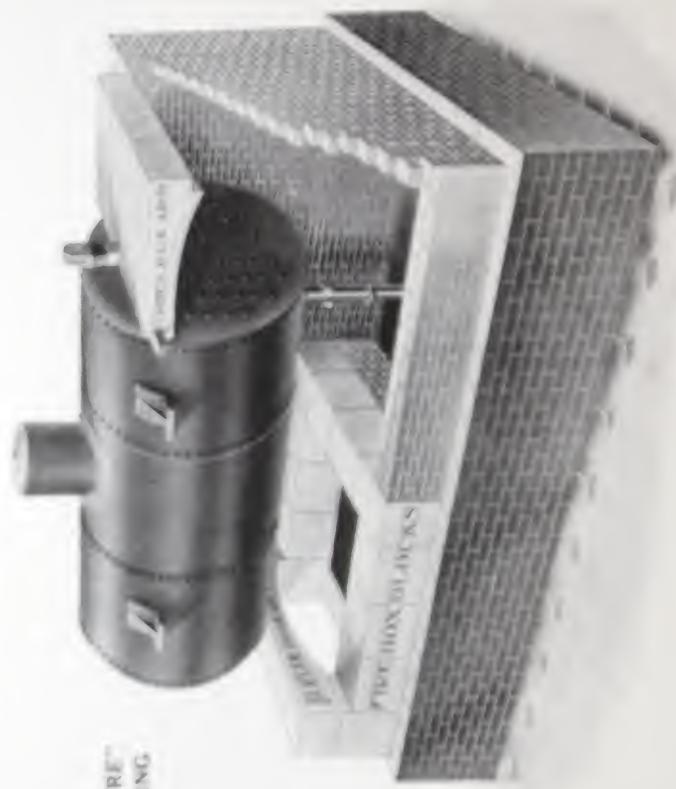
While we have been making fire brick over seventy-five years it was a comparatively recent idea with us to see if we could not improve upon the common practice of building boiler furnace arches and linings out of small fire brick. Using our "**STEEL MIXTURE**" material we got out first the Boiler Door Arch and later the Fire Box Blocks and Back Arches. They were all most successful from the start and to-day many thousands of plants use them habitually.

We fit nearly all styles of boiler furnaces directly from stock. To do this we carry an immense assortment which it would not be practicable to catalog. We have described the various parts thoroughly and shown the measurements we need in order to quote prices on them.

We make a specialty of prompt deliveries.

McLEOD & HENRY CO.

THE
"STEEL MIXTURE"
BOILER SETTING



The “Steel Mixture” Boiler Setting



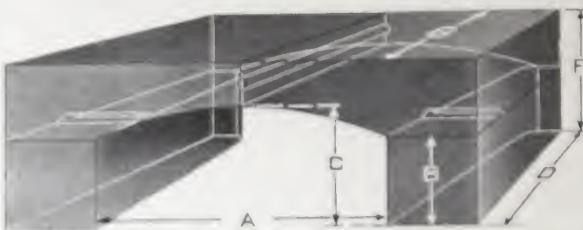
STEEL MIXTURE is the name given to the material out of which the different parts of this boiler setting are made. It is very hard and very refractory. It fuses at 3750° F. Its tough texture enables it to stand a great deal of abrasion. These are qualities that are essential to a good boiler setting material. “**STEEL MIXTURE**” has them all.

More important still is the fact that it can be successfully moulded into the large blocks shown on the opposite page. These can be adapted to practically any kind of a boiler setting. Their usual form and arrangement can easily be seen by reference to the cut. The Boiler Door Arch, the Fire Box Blocks, and the Back Combustion Chamber Arch are all shown in their ordinary positions.

Note the simplicity and strength that is indicated in the design of this setting. In it we have avoided anything of a fancy or complicated nature, yet the parts can be easily adjusted to suit individual needs. A detailed description is given on the following pages.

Although shown with a horizontal tubular boiler,
our arches and blocks are used with all kinds.

Boiler Door Arches Showing Necessary Measurements



Single Opening Boiler Door Arch with Jambs

The following dimensions with letters referring to the cuts are those we ought to have in order to quote prices or fill orders correctly:

- A—Width of door opening.
- B—Height on sides.
- C—Height in center.
- D—Depth of dead plate.
- E—Distance between doors (if two or more openings).
- F—Distance from boiler to grate.
- G—Depth of arch.

Also give inside width of fire box. If there are more than two openings under one boiler, state how many.



Double Opening Boiler Door Arch with Jambs

The Boiler Door Arch

HE standard form of our Boiler Door Arch is shown on page six. It would be well to state here that we furnish them for fronts having any number of openings. The construction of this arch is worth careful attention. No centering is required, and the tongue and groove feature holds it tight and rigid. Its parts are few and simple, making it easy to put in place.

The smooth walls offer fewer chances for destructive influences to act on it than the rough and jointed surface of ordinary brick work. The top and sides have plenty of flare so as not to interfere with the spreading of coal.

All these points, together with the quality of the material give our arch the remarkable lasting power and general efficiency that has made it famous.

In order to quote prices we should have the measurements called for on page six. We keep the jambs and arch pieces in many graduated sizes and select those best suited to each individual case. They are always carefully fitted up and trimmed before shipment.



Double Opening Boiler Door Arch
Showing Fire Box Blocks

The Boiler Door Arch (Con.)

 HIS cut shows plainly how the "STEEL MIXTURE" arch completely fills the space over the dead plate and under the smoke box. As the boiler is in many cases so arranged that it is much higher than the top of the arch, brick work is usually laid upon the latter, which is amply strong enough to support any construction of this nature.

This cut also shows, the center jamb which is usually used in cases where there are two or more openings. If the distance between the doors is large, two are used.

Our Arches are Universal in their Application

They are as successful with Water Tube Boilers as they are with Horizontal Boilers. Of the latter it makes no difference whether the front be flush or overhanging. The arches are equally useful.

We have in stock special sizes for several of the best known types of Water Tube Boilers. In fact there is hardly a form of boiler in use today that we have not equipped with our arches and in practically every case they have more than fulfilled all expectations.



Fire Box Blocks

Measurements Required—Length and width of grate; also state height and thickness of blocks wanted

Fire Box Blocks



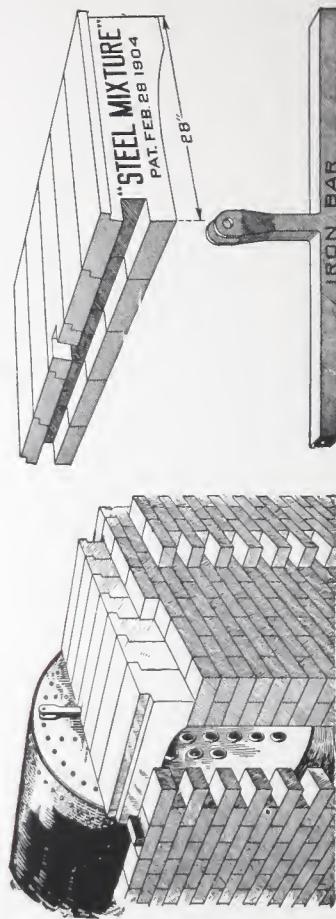
THESE blocks make a thick, smooth, durable wall around the fire.

Their use materially reduces the number of joints in the furnace wall. It is in the joints that destruction starts and goes on most rapidly. Clinkers do not so readily form on their surfaces and air leaks are prevented by the tongued and grooved joints. Thus the lining not only lasts longer but tends to promote better combustion.

They can be readily removed and replaced if necessary. For bridge walls and cleaning tables they are especially useful as they can be laid up in a variety of ways in order to meet the requirements of different furnaces.

"STEEL MIXTURE" blocks resist hard usage as well as high temperatures. They form the ideal lining for that part of the fire box immediately around the fire. Ordinary fire brick can be used in the other parts.

We carry blocks made from **"STEEL MIXTURE"** all tongued and grooved, in three thicknesses—6 inches, 8 inches and 9 inches. The 8 inch and 9 inch blocks come in two heights, 12 inches and 18 inches; the 6 inch blocks in three, 12 inches, 18 inches and 24 inches. They are all made in lengths of 12 inches, 18 inches and 24 inches.



Foot's Back Combustion Chamber Arch with Clevis Bar

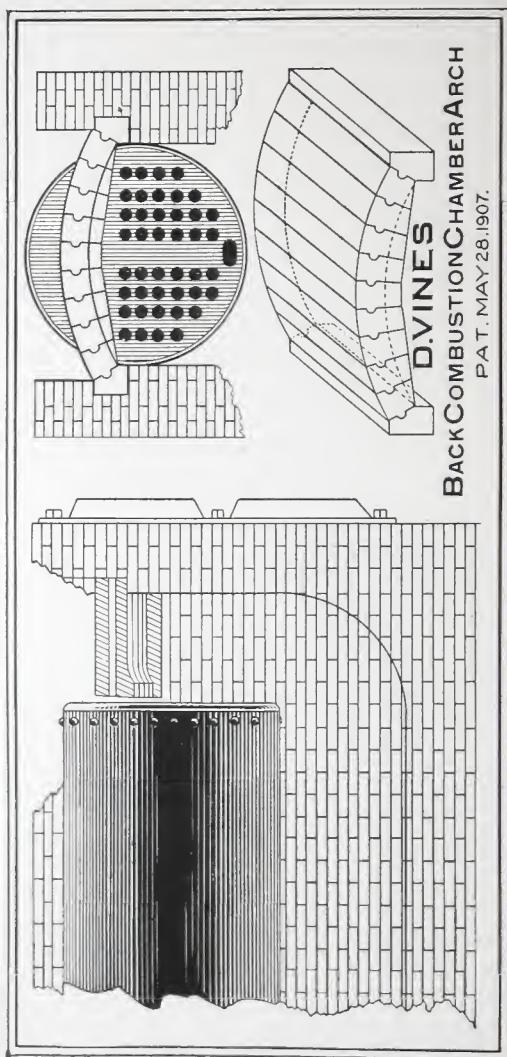
Measurements Required—Distance between side walls; distance from boiler to back wall. State whether or not there is a manhole in back head, and if so, its distance above tubes.

Back Combustion Chamber Arch

(FOOTE'S PATENT)

EFERRING to the drawing it will be seen that this arch is made up of a number of sections shiplapped together. They are supported on one end by the back wall of the setting and on the other by an iron bar resting on the side walls and running parallel to the back wall of the boiler but not touching it. This bar is of sufficient strength to support the weight that rests on it and is amply protected from the heat by being set within a groove formed in the "**STEEL MIXTURE**" material of the blocks. The arch is set far enough from the boiler to allow the latter to expand freely, the space between being packed with asbestos to make it gas tight. This space should be from five-eighths to one inch wide, according to the size of the boiler. Thus we have a back arch that is simple to erect, does not interfere with the expansion of the boiler, and is perfectly tight. It is immovable and as durable as the boiler itself. In addition there is plenty of headroom to work in the combustion chamber when repairing tubes.

The iron bar has a clevis arm which protrudes through the top of the arch so as to be supported from above if desired. In spans under 6 feet a plain bar is furnished. In case of a manhole in the back head bars with two clevis arms are used. Sufficient asbestos is supplied to set each arch.



Measurements Required—Distance between side walls; distance from boiler to back wall. State whether or not there is a manhole in back head

Back Combustion Chamber Arch

(THE D. VINES PATENT)



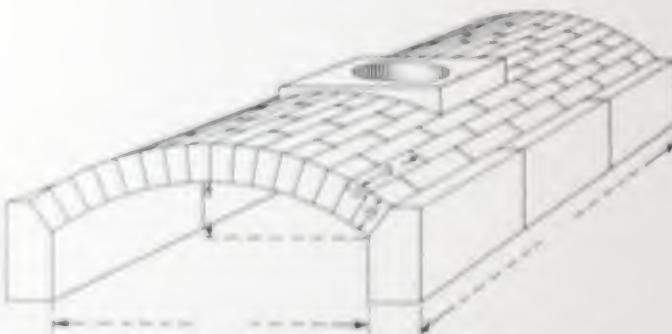
HIS arch though built on different lines from the preceding one has many of the advantages of the former. It is a curved arch of solid "**STEEL MIXTURE**" blocks tongued and grooved together. It is supported entirely by the side walls and is so constructed as to protect the crown sheet of the boiler down to and below the water line. The arch proper has a radius of 6 feet, 4 inches which gives it sufficient rise to make it entirely self supporting. As a covering it requires only a thin coat of magnesia and asbestos mortar. Of course it may be bricked over in the old way, but it is not necessary.

The arch is easily placed in position. It is set five-eighths of an inch to one inch from the boiler, according to its diameter. The ends of the blocks toward the boiler are beveled back, forming a V shaped slot between arch and boiler. This is filled with asbestos or other soft material, forming a cushion between the arch and boiler which allows the latter to expand and contract freely.

Furnace Arches



Inner Arch with Water Tube Boiler



Arch Showing Plain Blocks and Feed Hole

Measurements Required.—Give the span, length and rise in all cases as indicated by the dimension lines.

Furnace Arches

N the opposite page are two cuts which show the furnace arch blocks we keep in stock.

These blocks are used for all kinds of arches — **Dutch Ovens, Ignition Arches, Stoker Arches**, etc., and are excellent for any of them.

They are kept in several different radii so as to exactly fit any desired circle. This makes a much stronger construction as the pressures are evenly distributed and the arch doesn't tend to crack.

Being of large size they have fewer joints to loosen up under changing temperatures.

We make special drawings and estimates to suit each case. All that is required are the dimensions called for on the opposite page, and any additional information as to the number and size of feed hole openings.

Feed Holes 12 inches, 14 inches and 16

inches in diameter are carried in stock and

we are prepared to make others to order.

The Fire Box Blocks are used for side walls under those arches with great success and when they are to be so used the height from grates to the spring line of the arch should be included with the other measurements.

Tile

 In addition to the different forms previously described we also carry a large line of tiles. These are all made of "STEEL MIXTURE" and have all the advantages of that material. A list of the more common sizes is given so that our patrons can pick out what they want.

12 x 12 x 2 inches	24 x 12 x 2½ inches
12 x 12 x 6	24 x 12 x 3
15 x 12 x 2	24 x 12 x 4
18 x 12 x 2	24 x 12 x 6
18 x 12 x 2½	24 x 18 x 3
18 x 12 x 3	24 x 18 x 4
18 x 16 x 4	30 x 12 x 2½
18 x 16 x 8	30 x 12 x 3
18 x 18 x 4	30 x 12 x 4
20 x 12 x 3	30 x 18 x 3
20 x 12 x 4	30 x 18 x 4
24 x 6 x 3	30 x 12 x 5
24 x 6 x 4	36 x 18 x 4

Heine "C. & T." and "U" Tile

B. & W. Tube Tile

Specials

We are always glad to estimate on any special work. We have the facilities for making any kind of blocks that can be moulded. All we require is a working drawing showing the block desired. Plenty of time should be given on this class of work as the quality is liable to suffer if the process is hurried.

Fire Brick

BELOW is given a list of the more common shapes that we are prepared to furnish. We will gladly quote prices on any of these, either in carload lots or in smaller quantities packed in barrels. These bricks are the highest grade and suitable for any purpose requiring a hard brick that will also stand a high degree of heat.



Square Brick



No. 1—Split



No. 2—Split



No. 1—Arch
4 ft. Inside Diameter—72 Bricks to the Circle



No. 2—Arch
2 ft. Inside Diameter—62 Bricks to the Circle



Brick



No. 1—Key
12 ft. Inside Diameter—112 Brick to the Circle



No. 2—Key
6 ft. Inside Diameter—63 Brick to the Circle



No. 3—Key
3 ft. Inside Diameter—38 Brick to the Circle



STEEL MIXTURE

No. 4—Key

1 ft. 6 in. Inside Diameter—26 Brick to the Circle



STEEL MIXTURE

No. 1—Wedge

3 ft. Inside Diameter—96 Brick to the Circle



STEEL MIXTURE

No. 2—Wedge

2 ft. 4 in. Inside Diameter—60 Brick to the Circle



Soaps



No. 1—Jamb



No. 1—Cupola Brick

Diameter, 42 in. Outside—30 in. Inside
15 Brick to the Circle



No. 2—Cupola Brick

Diameter, 48 in. Outside—36 in. Inside
17 Brick to the Circle



No. 3—Cupola Brick

Diameter, 60 in. Outside—48 in. Inside
21 Brick to the Circle



No. 4—Cupola Brick

Diameter, 72 in. Outside—60 in. Inside
25 Brick to the Circle



No. 1—Circle

Diameter, 31 in. Outside—24 in. Inside
11 Brick to the Circle



No. 2—Circle

Diameter, 45 in. Outside—36 in. Inside
13 Brick to the Circle



No. 3—Circle

Diameter, 57 in. Outside—48 in. Inside
20 Brick to the Circle

“Steel Mixture” Ground Fire Clay

O GET the best results in laying up fire brick of any kind it is vitally necessary to use a first-class clay. Poor clay melts first and sets up a fluxing action on the brick which rapidly destroys it. Our Fire Clay is very finely ground and of a quality that gives the best results. It is especially to be recommended in laying up our “STEEL MIXTURE” products. It is sold either by the 100 lb. bag, 400 lb. bbl., or carload.

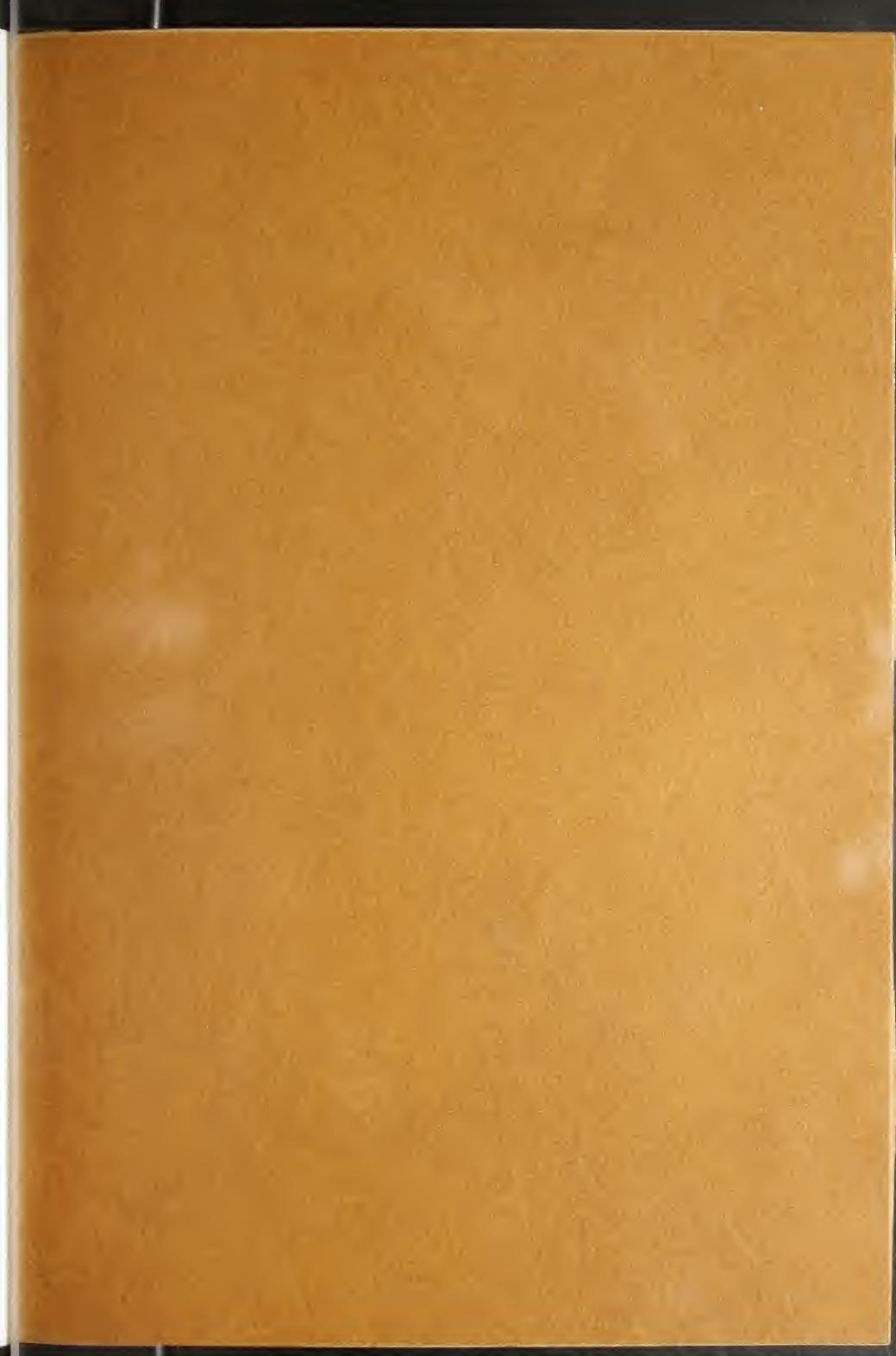
Conclusion

E INVITE further correspondence on any subject pertaining to fire brick in general and as applied to boiler furnaces in particular. We can promise prompt and courteous attention to any inquiry and will gladly make drawings if necessary.

We know what “STEEL MIXTURE” will do and what it has done and we are never satisfied with anything less than perfect satisfaction on the part of our customers.

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TROY, N. Y.







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